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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,894	01/13/2004	John Randall West	07464-0002	3627
25213 7590 08/26/2008 HELLER EHRMAN LLP 4350 La Jolla Village Drive, 7th Floor San Diego, CA 92122				
EXAMINER				
DAO, THUY CHAN				
ART UNIT		PAPER NUMBER		
2192				
MAIL DATE		DELIVERY MODE		
08/26/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/756,894

**Applicant(s)**

WEST ET AL.

**Examiner**

Thuy Dao

**Art Unit**

2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06/03, 06/24, 08/15/08.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-37, 39, 40, 42, 44-48 and 50-52 is/are pending in the application.  
4a) Of the above claim(s) 1, 38 and 43 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 2-37, 39, 40, 42, 44-48 and 50-52 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This action is responsive to the amendment filed on June 3, a first supplemental amendment filed on June 24, and a second supplemental amendment filed on August 15, 2008.
2. Claims 2-37, 39-40, 42, 44-48, and 50-52 have been examined.

### **Response to Amendments**

3. In the instant amendment, claims 1, 38, and 43 have been canceled; claims 2, 39-40, 44, 47-48 have been amended; and new claims 51-52 have been added.
4. As an initial matter, the examiner notes that the drawings were objected to in the last two Office actions (June 7, 2007 and February 26, 2008).

In the instant amendments, the Applicants still submitted the replacement drawings with hand-written text (FIG. 4 and 5) and did not submit other required replacement drawings (FIG. 3, 6, 7, and 11).

### **Drawings**

5. The objection to the drawings is repeated herein for Applicants' convenience:

Figure 3: hand-written "32" and "Flow Control Structures";

Figure 4: in the specification, paragraph [0043] sets forth "an identification field 56 within the application metadata repository 54". For consistency, "56" should be deleted in both Figure 4 and specification (i.e., only a single block for "Application Meta Data Repository" 54 in Figure 4). However, if the Applicants would like to keep "Identification Field 54" in the drawing, please re-submit Figure 4 (based on the June 3, 2008 version) without any hand-written text and/or hand-drawn lines/blocks;

Figure 5: hand-drawn blocks;

Figure 6: a clean version without "54" should be provided;

Figure 7: a clean version should be provided. Please also note "Read AOM" should be spelled out as "Read Application Object Model" (not - Read Application Mode- as currently amended); and

Figure 11: a clean version should be provided without any hand-written text.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### **Claim Objections**

6. Claims 50-52 are objected to because of minor informalities.

#### **Claim 50 (new):**

Claim 50 recites a plurality of limitations "test cases". To distinguish different "test cases", the phrase in line 4-5 is considered to read as -storing test cases in abstract representations to generate platform-independent test cases in [[any target environment]] script format to provide...- as similarly recited in the version filed on November 29, 2007.

The phrase in line 11 is considered to read as -the application object [[mode]] model...- as previously recited in line 10.

#### **Claim 51 (new):**

The phrase in lines 7-8 is considered to read as - an application object [[mode]] model... - as later recited in line 8.

The phrase in last line is considered to read as - ...and modify components of the abstract representation of test cases into new test scripts\_ - (missing the period at the end of the sentence).

**Claim 52 (new):**

Claim 50 recites a plurality of limitations "test cases". To distinguish different "test cases", the phrase in line 6 is considered to read as - ... to generate platform-independent test cases in [[any target environment]] script format to provide... - as similarly recited in the version filed on November 29, 2007.

The phrase in line 11 is considered to read as - the application object [[mode]] model... - as previously recited in line 10.

Appropriate correction is requested.

**Response to Arguments**

7. Applicants arguments have been fully considered. However, they are moot in view of new ground of rejection. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action.

**Claim Rejections – 35 USC § 103**

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 2-37, 39-40, 42, 44-48, and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over WinRunner (art of record, "WinRunner 7.0 Tutorial") in view of Melamed (art of record, US Patent Publication No. 2004/0107415 A1).

**Claim 50 (new):**

WinRunner discloses *a method for transforming test cases that are converted from a source test script to an abstract representation and storing abstract representation of test cases into a data store, comprising:*

*test cases (e.g., page 13, phrase 2; pages 17, 52-53),*

*storing test cases in abstract representations (e.g., GUI map, page 13, phrase 1; pages 22, 27-29)*

*to generate test cases in script format (e.g., pp. 160-166, Batch Test, script format of a sample test case in pp. 161-162, which calls other tests and repeat each test 3 times)*

*to provide interoperability between automation tools and test cases (e.g., pp. 11-14);*

*importing test cases written in one or more scripting languages (e.g., pages 32, 35-46, 104-108);*

*using semantic analysis to convert test cases to an abstract representation (e.g., to convert test cases in scripting language to GUI map, a semantic analysis must have been performed, pages 22, 27, 47; to convert data-driven test including input data files, relational tables ... to GUI map, a semantic analysis must have also been performed, pp. 122-127)*

*that includes application state (e.g., page 6, Flight Reservation applications 1A and 1B; pages 35, 38-40),*

*external interaction sequences (e.g., pp. 32-33, 36, 54) and*

*input data (e.g., pp. 24-26, 120-124)*

*without changing or deleting an original test case (e.g., pp. 161-166, without deleting test cases 1-6; Batch Test executed without deleting any test cases, pp. 160-166)*

*based on an application object model, where the application object model is a metadata representation (e.g., pp. 172-178, GUI Editor including GUI files)*

*for a modeling application under test (e.g., page 6, GUI Editor including GUI files as a metadata representation of Flight Reservation applications 1A and 1B under test, pages 17, 60, 82) and*

*includes components selected from application object type definitions for application objects (e.g., pp. 173-178, 22-24, 60, 90),*

*attribute definitions for each application object type (e.g., pages 60, 23-26, 145-148),*

*definitions of methods and events that are supported by each application object type and definitions of effects of events on an application state (e.g., pp. 54-55, 59-64, 145-148, Flight Reservation applications 1A and 1B including methods/events such as searching flights, entering passenger information, reserving/booking flights, modifying/canceling flights).*

WinRunner does not explicitly disclose *storing test cases in abstract representations to generate platform-independent test cases in script format to provide interoperability between automation tools and cross environment portability of test cases.*

However, in an analogous art, Melamed further discloses:

*storing test cases in abstract representations (e.g., [0014], [0018]-[0022], [0040])*

*to generate platform-independent test cases in script format (e.g., [0049]-[0051], [0071]-[0076])*

*to provide interoperability between automation tools and cross environment portability of test cases (e.g., [0008]-[0010], [0049]-[0051], [0071]-[0079]).*

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Melamed's teaching into WinRunner's teaching. One would have been motivated to do so to provide a unified multi-user platform that

manages/assigns graphical user interface driven test cases as suggested by Melamed (e.g., [0012], [0045]-[0046]).

**Claim 2:**

The rejection of claim 50 is incorporated. WinRunner discloses *the at least one application state comprises a representation of a runtime snapshot of the application while under test* (e.g., pp. 40, 22-26).

**Claim 3:**

The rejection of claim 2 is incorporated. WinRunner discloses *at least one application state comprises a set of application objects, attributes of the application objects, and values of the attributes* (e.g., pp. 34-38).

**Claim 4:**

The rejection of claim 2 is incorporated. WinRunner discloses *the at least one application state is a plurality of application states, and the plurality of application states are arranged in a hierarchical manner* (e.g., pp. 35, 38-40).

**Claim 5:**

The rejection of claim 2 is incorporated. WinRunner discloses *the database system is a relational database management system* (e.g., pp. 11-12).

**Claim 6:**

The rejection of claim 2 is incorporated. Melamed discloses *the database system is an extensible markup language (XML) database management system* (e.g., [0049]-[0051], [0071]-[0076]).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Melamed's teaching into WinRunner's teaching. One would have been motivated to do so to provide a unified multi-user platform that



manages/assigns graphical user interface driven test cases as suggested by Melamed (e.g., [0012], [0045]-[0046]).

**Claim 7:**

The rejection of claim 2 is incorporated. WinRunner discloses *the at least one scripting language is at least one of a typed programming language or an untyped programming language used for at least one of recording or authoring test cases* (e.g., pp. 35-45, 48-50).

**Claim 8:**

The rejection of claim 2 is incorporated. WinRunner discloses *the at least one external interaction sequences comprises a representation of events invoked by external agents on the set of application objects* (e.g., pp. 11-12, 166).

**Claim 9:**

The rejection of claim 8 is incorporated. WinRunner discloses *at least one external agent is at least one of a human agent or a software agent* (e.g., pp. 51-55).

**Claim 10:**

The rejection of claim 8 is incorporated. WinRunner discloses *the at least one interaction sequence comprises at least one flow control structure for capturing at least one of a sequential interaction, a concurrent interaction, a looping interaction, or a conditional interaction* (e.g., pp. 184, 84-86).

**Claim 11:**

The rejection of claim 2 is incorporated. WinRunner discloses *implementing at least one syntax analyzer for the at least one test case* (e.g., pp. 166, 44-46).

**Claim 12:**

The rejection of claim 11 is incorporated. WinRunner discloses *a distinct syntax analyzer is implemented for each scripting language used in each test case* (e.g., pp. 34-38, 40).

**Claim 13:**

The rejection of claim 12 is incorporated. Melamed discloses *the at least one syntax analyzer comprises rules of syntax analysis that are provided in Extended Backus-Naur Form EBNF* (e.g., [0016], [0051]).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Melamed's teaching into WinRunner's teaching. One would have been motivated to do so as set forth above.

**Claim 14:**

The rejection of claim 12 is incorporated. Melamed discloses *generating at least one parse tree in the form of an Abstract Syntax Tree using the at least one syntax analyzer* (e.g., [0054], [0076]).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Melamed's teaching into WinRunner's teaching. One would have been motivated to do so as set forth above..

**Claim 15:**

The rejection of claim 2 is incorporated. Melamed discloses *the semantic analysis is used to convert an Abstract Syntax Tree to the abstract representation based on an Application Object Model AOM* (e.g., [0016], [0051]).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Melamed's teaching into WinRunner's teaching. One would have been motivated to do so as set forth above.

**Claim 16:**

The rejection of claim 15 is incorporated. Melamed discloses *the semantic analysis is used to decompose the Abstract Syntax Tree into the at least one application state, the at least one external interaction sequences and the input data* (e.g., [0072]-[0074]).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Melamed's teaching into WinRunner's teaching. One would have been motivated to do so as set forth above.

**Claim 17:**

The rejection of claim 15 is incorporated. WinRunner discloses *the Application Object Model comprises a metadata representation of the application* (e.g., pages 6, 17, 60, 82).

**Claim 18:**

The rejection of claim 17 is incorporated. WinRunner discloses *the metadata representation comprises object type definitions for application objects* (e.g., pages 60, 172-178).

**Claim 19:**

The rejection of claim 17 is incorporated. WinRunner discloses *the metadata representation comprises attribute definitions for each type of application object* (e.g., pages 23-26, 60).

**Claim 20:**

The rejection of claim 17 is incorporated. WinRunner discloses *the metadata representation comprises definitions of a plurality of methods and events that are supported by each type of application object* (e.g., pp. 54-55, 145-148).

**Claim 21:**

The rejection of claim 17 is incorporated. WinRunner discloses *the metadata representation comprises definitions of a plurality of effects of events on an application state* (e.g., pp. 59-64).

**Claim 22:**

The rejection of claim 18 is incorporated. WinRunner discloses *the object type definitions comprise hierarchical object types, container object types, and simple object types* (e.g., pages 22, 60, 90).

**Claim 23:**

The rejection of claim 22 is incorporated. WinRunner discloses *each hierarchical object type-is associated with a distinct application state; and wherein each container object type comprises an application object type which is configured to contain instances of other application objects* (e.g., pp. 172-178).

**Claim 24:**

The rejection of claim 23 is incorporated. WinRunner discloses *the state associated with a hierarchical application object type is at least one of a modal application state or a nonmodal application state* (e.g., pages 17, 82, 90).

**Claim 25:**

The rejection of claim 24 is incorporated. WinRunner discloses *the modal application state is configured to restrict possible interactions with application object instances available within a current application state* (e.g., pages 6, 145-148).

**Claim 26:**

The rejection of claim 22 is incorporated. WinRunner discloses *the effects of events on the at least one application state capture at least one consequence of the events to the application state* (e.g., pp. 23-26, 59-64).

**Claim 27:**

The rejection of claim 26 is incorporated. WinRunner discloses *the at least one consequence of an event comprises at least one of creation of a new object instance of a given type, deletion of an object instance of a given type, modification of attributes of an existing object instance, or selection of an instance of an object type* (e.g., pp. 54-55, 145-148).

**Claim 28:**

The rejection of claim 27 is incorporated. WinRunner discloses *the creation of a new object instance for a hierarchical object comprises creation of a new application state* (e.g., pp. 38-40, 172-178).

**Claim 29:**

The rejection of claim 27 is incorporated. WinRunner discloses *the selection of an instance of an object type that is hierarchical comprises selection of the application state associated with the instance* (e.g., pages 6, 17, 60, 82).

**Claim 30:**

The rejection of claim 2 is incorporated. WinRunner discloses *enriching the abstract representation based on information from an application metadata repository* (e.g., pp. 42-43, 22-26).

**Claim 31:**

The rejection of claim 30 is incorporated. WinRunner discloses *enriching the abstract representation comprises extracting values for attributes of application objects associated with the at least one test case that are missing* (e.g., pp. 48-50).

**Claim 32:**

The rejection of claim 30 is incorporated. WinRunner discloses *enriching the abstract representation comprises decoupling the at least one test case from at least*

*one of an associated recording environment or an associated authoring environment (e.g., pp. 51-55).*

**Claim 33:**

The rejection of claim 30 is incorporated. WinRunner discloses *enriching the abstract representation provides attributes that are stable within an application metadata representation (e.g., pp. 42-43, 35).*

**Claim 34:**

The rejection of claim 33 is incorporated. WinRunner discloses *at least one application object is identified by an identification field within the application metadata repository (e.g., pp. 38-40, 44-46).*

**Claim 35:**

The rejection of claim 32 is incorporated. WinRunner discloses *the identification field provides platform independence of the abstract representation (e.g., pages 184, 84-86).*

**Claim 36:**

The rejection of claim 35 is incorporated. WinRunner discloses *enriching the abstract representation provides a representation of test cases that is independent of any particular test execution environment (e.g., pp. 11-12, 51-55).*

**Claim 37:**

The rejection of claim 2 is incorporated. WinRunner discloses *separating application object attributes and input data from external interaction sequencing to provide automatic parameterization (e.g., pages 40, 44-46).*

**Claim 51:**

WinRunner discloses *a system for transforming test cases that are converted from a source test script to an abstract representation and storing abstract representation of test cases into a data store* as set forth in independent claim 50 above.

Melamed further discloses:

*logic using environment mappings providing platform independence of test cases and test scripts are generated for multiple test execution environments without changing or deleting an original test case* (e.g., [0049]-[0051], [0071]-[0076]),

*the test cases being recombined and modified using external rules to combine and modify components of the abstract representation of test cases into new test scripts* (e.g., FIG. 6, 14, [0014], [0036], [0092]-[0096]).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Melamed's teaching into WinRunner's teaching. One would have been motivated to do so to provide a unified multi-user platform that manages/assigns graphical user interface driven test cases as suggested by Melamed (e.g., [0012], [0045]-[0046]).

**Claim 39:**

The rejection of claim 51 is incorporated. WinRunner discloses *the at least one test case is converted using a syntax analyzer* (e.g., pp. 35-46, 104-108).

**Claim 40:**

The rejection of claim 51 is incorporated. Melamed discloses *the semantic analysis is configured to convert an abstract syntax tree to the abstract representation based on an Application Object Model* (e.g., [0016], [0051]).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Melamed's teaching into WinRunner's teaching. One would have been motivated to do so as set forth above.

**Claim 42:**

The rejection of claim 51 is incorporated. WinRunner discloses *a third set of instructions which, when executed by the processor, configures the processor to enrich the abstraction representation to provide a representation of the at least one test case that is independent of any particular test execution environment* (e.g., pp. 145-148, 172-178).

**Claim 52:**

Claim 52 is a computer system version, which recites the same limitations as those of claim 50, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claim(s), it also teaches all of the limitations of claim 52.

**Claims 44-48:**

Claims 44-48 are computer system versions, which recite the same limitations as those of claims 11-17, 36-37, 42, and 50-51, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claim(s), it also teaches all of the limitations of claims 44-48.

**Conclusion**

10. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone/fax numbers are (571) 272 8570 and (571) 273 8570, respectively. The examiner can normally be reached on every Tuesday, Thursday, and Friday from 6:00AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Thuy Dao/  
Examiner, Art Unit 2192

/Tuan Q. Dam/  
Supervisory Patent Examiner, Art Unit 2192